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PATENT CLAIMS (amended according to Art. 19 on 01.24.2004)

1. A power semiconductor module comprising
 - 5 - at least one semiconductor chip (11) made of a semiconductor material and having a first and a second main electrode,
 - a first and second main connection (91, 92),
 - a contact lamina (2) in electrical contact with
 - 10 the first main electrode and the first main connection (92),
 - the contact lamina (2) containing an alloying partner and it being possible for a eutectic to be formed between the alloying partner and the
 - 15 semiconductor material,
 - the contact lamina being coated with an electrically conductive protective layer (31, 32),
 - an external contact area of the protective layer (31, 32) substantially comprising a noble metal,
 - 20 an electrically conductive nitride or a graphite, characterized in that
 - the protective layer (31, 32) has at least one electrically conductive base layer (31) applied on the contact lamina (2), and
 - 25 - an electrically conductive surface layer (32), which forms the external contact area.
2. The power semiconductor module as claimed in claim 1, characterized in that
 - 30 - the base layer (31) substantially comprises Ni and preferably has a thickness of between approximately 1 μm and 15 μm , preferably between 2 μm and 8 μm .
- 35 3. The power semiconductor module as claimed in claim 1 or 2, characterized in that
 - the surface layer (32) has a thickness of between approximately 0.1 μm and 5 μm .

4. The power semiconductor module as claimed in one of claims 1 to 3, characterized in that

- the surface layer (32) substantially comprises Ru,
- 5 - an electrically conductive intermediate layer is provided between the surface layer (32) and the base layer (31), said intermediate layer substantially comprising Au and preferably having a thickness of approximately 0.2 μm , and
- 10 - the base layer (31) preferably has a thickness of between 5 μm and 12 μm .

5. The power semiconductor module as claimed in one of the preceding claims, characterized in that

- 15 - the semiconductor chip (11) internally has an IGBT structure or a diode structure.

PATENT CLAIMS

1. A power semiconductor module comprising
 - at least one semiconductor chip (11) made of a semiconductor material and having a first and a second main electrode,
 - a first and second main connection (91, 92),
 - a contact lamina (2) in electrical contact with the first main electrode and the first main connection (92),
 - the contact lamina (2) containing an alloying partner and it being possible for a eutectic to be formed between the alloying partner and the semiconductor material,
- 15 characterized in that
 - the contact lamina is coated with an electrically conductive protective layer (31, 32).
2. The power semiconductor module as claimed in claim 1, characterized in that
 - the contact lamina (2) substantially comprises Ag or Al.
3. The power semiconductor module as claimed in either of claims 1 and 2, characterized in that
 - an external contact area of the protective layer (31, 32) substantially comprises a noble metal, preferably Ag, Au, Pd, Rh or Ru.
- 30 4. The power semiconductor module as claimed in either of claims 1 and 2, characterized in that
 - an external contact area of the protective layer (31, 32) substantially comprises an electrically conductive nitride, preferably TiN, CrN or ZrN.
- 35 5. The power semiconductor module as claimed in either of claims 1 and 2, characterized in that
 - an external contact area of the protective layer

(31, 32) substantially comprises a graphite.

6. The power semiconductor module as claimed in one of claims 3 to 5, characterized in that

- 5 - the contact lamina (2) substantially comprises Al or Mg,
- the protective layer (31, 32) has at least one electrically conductive base layer (31) applied on the contact lamina (2), and
- 10 - an electrically conductive surface layer (32), which forms the external contact area.

7. The power semiconductor module as claimed in claim 6, characterized in that

- 15 - the base layer (31) substantially comprises Ni and preferably has a fourth thickness of between approximately 1 μm and 15 μm , preferably between 2 μm and 8 μm .

20 8. The power semiconductor module as claimed in claim 6 or 7, characterized in that

- the surface layer (32) has a third thickness of between approximately 0.1 μm and 5 μm .

25 9. The power semiconductor module as claimed in one of claims 6 to 8, characterized in that

- the surface layer (32) substantially comprises Ru,
- an electrically conductive intermediate layer is provided between the surface layer (32) and the
- 30 base layer (31), said intermediate layer substantially comprising Au and preferably having a fifth thickness of approximately 0.2 μm , and
- the base layer (31) preferably has a fourth thickness of between 5 μm and 12 μm .

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10. The power semiconductor module as claimed in one of the preceding claims, characterized in that

- the semiconductor chip (11) internally has an IGBT

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structure or a diode structure.